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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/413,984 10/07/99 KITAMURA

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EXAMINER

IM52/0328

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ART UNIT

PAPER NUMBER

1745

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03/28/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/413,984

Applicant(s)  
Kitamura

Examiner  
Tracy Dove

Group Art Unit  
1745



☒ Responsive to communication(s) filed on 7 Oct 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-12 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Specification***

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

#### **PAGE 1:**

lin 6-8, "a metal whose valence number of trivalence as its oxide";

lin 14, "appropriate potential";

lin 15-16, "its corrosion potential is more base than the decomposition potential of water";

lin 22; "Heretofore";

#### **PAGE 2:**

lin 2-5; "that a composition ratio of these elements is optimized relative to gas generation" and "it is a present situation";

lin 8-10, "expected to provide a stable effect" and "whereupon mixing work",

lin 14, "a fully stable effect";

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lin 19-21, “a metal having trivalence to an alloyed zinc powder by the dry mixing method, in more particularly”;

PAGE 3:

lin 4-5, “a metal whose valence number of trivalence is chemically stable as an oxide”;

Note this phrase is contained throughout the specification. All instances where the phrase occurs require correction;

lin 11, “for use in a cell by 50 to 1000 ppm”;

In lin 18-21 it is unclear which metal has an average particle size of 100  $\mu\text{m}$  or less;

lin 24-25, “mixing the metallic powder to a zinc alloy powder for use in a cell under a dry condition”;

PAGE 4:

Page 4 should be revised in accordance with the objections to pages 1-3.

PAGE 5:

lin 8, “The trivalent metal-mixed zinc powder”;

lin 14 after “generation” add “,”;

lin 15 after “method” add “,”;

lin 17, “which is excellent in preservability, storability”;

lin 19, “Mechanism of controlling”;

PAGE 6:

lin 6, “in order from the side of electrolytic solution toward the side of zinc”;

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PAGE 7:

lin 1-2, "If a portion of Zn site of" and "at this point, following formula";

PAGE 8:

lin 9, "effect to be brought about by the addition increment will not appear";

PAGES 9-11:

✓ Pages 9-11 should be revised in accordance with the objections to pages 1-8.

### ***Claim Objections***

Claims 1 and 2 are objected to because of the following informalities: the phrase "characterized by comprising" should be replaced with "comprising". In line 2 of each claim and line 4 of claim 2, deletion of "for use in a cell" after "a zinc alloy powder" is suggested.

✓ Appropriate correction is required.

Claims 6-8 and 12 are objected to because of the following informalities: deletion of "for use in a cell" after "a zinc alloy powder" is suggested. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 1-12 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a trivalent compound of  $\text{Bi}_2\text{O}_3$  and  $\text{In}_2\text{O}_3$ , does not reasonably provide enablement for any trivalent metal compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The specification does not provide enablement for any trivalent compound.

Claims 4, 5, 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for commercially available metallic powders of specified particle size, does not reasonably provide enablement for an average particle size of  $100\text{ }\mu\text{m}$  or less. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. Specifically, particle sizes approaching zero are not enabled by the specification. The only reference to a specific particle size of the metallic powder is in the comparative examples, "particle sizes of 75 to  $850\text{ }\mu\text{m}$ ".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 6-8 and 12 recite a metal whose trivalent compound is chemically stable at room temperature and atmospheric pressure. This phrase is indefinite because a *trivalent compound* is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Furthermore, the chemical stability of the compound is not entirely dependent on temperature and pressure conditions.

The phrase “a metal whose trivalent compound” is indefinite because it is not the trivalent compound that is being claimed. The trivalent compound, according to the specification, is formed when the active material contacts the electrolyte. Since the claims are directed toward a negative active material and a method of preparing the negative active material, the chemical stability of the trivalent compound is not given patentable weight.

The claims recite “a zinc alloy powder . . . and an additional metal”, which is unclear because a zinc alloy inherently contains zinc with at least one additional metal. It is unclear what applicant is intending to claim regarding the limitation “and an additional metal”.

To the extent the claims are understood in view of the objections and rejections to the claims above, note the following prior art rejections.

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Glaeser, US 5,240,793.

Glaeser teaches a zinc powder for alkaline batteries having an indium content of from 10 to 10,000 ppm (preferably from 100 to 1,000 ppm) and additionally contains from 10 to 10,000 ppm (preferably from 100 to 1,000 ppm) of bismuth. See abstract. Glaeser teaches a zinc powder and process for preparing the zinc powder for alkaline batteries and a process for preparing the zinc powder with a very low gas evolution (problem solved by instant invention) in the alkaline electrolyte by alloying or applying metal into or onto zinc. Zinc powder is suitable for use in alkaline batteries only if it exhibits a sufficiently low hydrogen gas evolution in the electrolyte. See col. 1, lin 8-11. Preferred particle sizes for zinc powders are between 70 and 600  $\mu\text{m}$ . Commercially available products often have grain size distributions of between 75 and 500  $\mu\text{m}$ . See col. 2, lin 35-38. Note Example 1. A fine zinc was alloyed with indium and



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bismuth (dry mixing). The fraction of between 75 and 500  $\mu\text{m}$  was separated off by sieving.

Thus indium and bismuth has a particle size between 75 and 500  $\mu\text{m}$ .

Thus the claims are anticipated.

Claims 1-3, 6-9 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Urry, US 6,022,639.

Urry teaches an electrochemical cell having a zinc anode comprising zinc flakes. Urry discloses it is known in the art to alleviate the cell leakage problems associated with hydrogen gas generation by adding indium and bismuth to zinc alloy powders. See col. 1, lin 20-25. The zinc flakes of Urry may be a zinc alloy such as Bi-In-Ca, Bi-Al, Bi-In or Bi-In-Al. The zinc powder can be independently (before additional metals added) comprised of pure zinc or a zinc alloy. The alloys may include 250 ppm bismuth and/or 250 ppm indium. In another embodiment of Urry, indium can be coated on the alloys in an amount of 10-500 ppm. See col. 3, lin 60-col. 4, lin 6. The additional components may be added directly to the dry zinc mixture (dry mixing). Indium salts may be used. See col. 4, lin 32-35.

Thus the claims are anticipated.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urry, US 6,022,639.

See discussion of Urry above.

Urry does not explicitly state the average particle size of the bismuth or indium metals is 100  $\mu\text{m}$  or less.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because powders of bismuth or indium having the claimed particle size are commercially available. This is evidenced by the instant specification on pages 9 and 10 which state the indium and bismuth powders used in the examples are commercially available. The skilled artisan would have known that a commercially available bismuth or indium powder could have been used for the bismuth or indium powder of Urry.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jose et al. 6,200,699 teaches an anode gel including zinc powder and indium oxide. See Example 1.

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Takamura et al. 4,037,033 teaches a zinc electrode having an active material powder including zinc powder, calcium oxide and bismuth oxide. See col. 3, lin 5-24.

Sasaki et al. 5,425,798 teaches a zinc alloy powder including zinc, bismuth and indium. See abstract.

Getz et al. 5,464,709 teaches adding indium oxide to inhibit zinc corrosion directly to an anode mix. See col. 6, lin 31-52.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached *Monday-Thursday from 8:00 AM - 6:30 PM*. My supervisor is Gabrielle Brouillette, who can be reached at (703) 308-0756. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax number is (703) 305-3599.

March 21, 2001

  
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